

Coatings

USSR

UDC 621.357.7:660

FEDORCHENKO, I. M., GUSLIYENKO, Yu. A., EPIK, A. P.

"Combined Nickel-Boron Electrolytic Coatings"

Kiev, Poroshkovaya Metallurgiya, No 8, Aug, 1972, pp 31-34.

Abstract: This article studies combined nickel coatings with improved physical and mechanical properties. It is shown to be possible to produce combined Ni-B coatings with even distribution of boron particles through the volume of the matrix. Diffusion annealing of these coatings results in the formation of qualitatively new structures and increased physical and mechanical properties. The wear resistance of heat-treated Ni-B coatings is equal to or better than the wear resistance of hard chromium electrolytic coatings.

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USSR

UDC 536.24:532.526

DYBAN, Ye. P., EPIK, E. Ya., KUROSH, V. D., KOZLOVA, L. G.

"Heat Transfer and the Boundary Layer on a Curved Surface Under Increased Turbulence of the Free Flow"

V sb. Vopr. obshch. i prikl. fiz. (Problems in General and Applied Physics -- Collection of Works), Alma-Ata, "Nauka", 1972, pp 159-164 (from RZh-Mekhanika, No 6, Jun 72, Abstract No 6B800)

Translation: Results of experiments on the local and average heat exchange at the surface of a cylinder in a transverse air flow under a constant density of the formal flow over its perimeter are presented. If the turbulence of the incident layer is low (less than 0.5%), the results of experiments on heat exchange in the frontal point satisfactorily agree with the theoretical solution. An attempt is made to analyze the characteristics of the development of the boundary layer and heat transfer under increased turbulence of the flow. The feasibility of introducing the Reynolds number determined on the basis of turbulent pulsation of the velocity into the criterial equation is established. 13 ref. Authors abstract.

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USSR

UDC 582.507

EPIK, E. Ya. and KOZLOVA, L. G.

"Possibility of Change of the Microstructure of a Turbulent Stream During Research on Convective Heat Exchange"

Teplofiz. i Teplotekhnika. Resp. Mezhd. Sb. (Thermophysics and Thermal Engineering. Republic Interdepartmental Collection of Works), No 2, 1972, pp 73-78 (from Referativnyy Zhurnal--Turbostroyeniya, No 1, 1973, Abstract No 1.49.116)

Translation: The case discussed involves the directional change of the turbulence characteristics of a stream (the levels and scales computed from the spectral distribution of the longitudinal-pulsation velocity component) by means of a turbulizing device (perforated disk) installed in front of a Vitushinskiy nozzle, with a ramming degree of 9 at the wind-tunnel entrance. A procedure is presented for measuring the turbulence characteristics of the stream with the use of thermoanemometric equipment. Three figures, nine references.

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1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--AMMONIUM BICARBONATE AS A REAGENT FOR THE DETECTION OF TRACES OF
CADMIUM -U- *Probably YEPK*
AUTHOR--(02)-OROCHKO, A.I., EPIK, P.A.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(1), 32-4
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--AMMONIUM COMPOUND, CADMIUM, TRACE ANALYSIS, CARBONATE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/1387 STEP NO--UR/0153/70/013/001/0032/0034
CIRC ACCESSION NO--AT0120180
UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AT0120180
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CD PRIME2 POSITIVE IS DETECTED IN
THE PRESENT OF CU PRIME2 POSITIVE, HG PRIME2 POSITIVE, OR BI PRIME3
POSITIVE BY PLACING A DROP OF THE UNKNOWN SOLN. ON FILTER PAPER
IMPREGNATED WITH NH SUB4 HCO SUB3, AND THEN DROPPING ONTO IT 4-5 DROPS
SATD. NH SUB4 HCO SUB3 (IF CU PRIME2 POSITIVE IS PRESENT, SUFFICIENT TO
CLEAR THE CENTRAL PART OF THIS ION). CD PRIME2 POSITIVE REMAINS IN THE
CENTER BECAUSE IT PPTS. AS CDCl SUB3, AND IT IS REVEALED BY THE YELLOW
COLOR PRODUCED BY HOLDING THE PAPER OVER H SUB2 S SOLN. TO DETECT
SMALLER QUANTITIES OF CD PRIME2 POSITIVE IN THE PRESENCE OF 200 FOLD
EXCESSES OF CU PRIME2 POSITIVE AND FE PRIME2 POSITIVE, ANY VOL. OF THE
UNKNOWN SOLN. IS PASSED THROUGH A NH SUB4 HCO SUB3 IMPREGNATED FILTER
PAPER, THE PAPER IS FURTHER TREATED WITH NH SUB4 HCO SUB3 SOLN. TO WASH
OUT THE CONTAMINATING IONS AND IS HELD OVER AN H SUB2 S SOLN. A
SEMIQUANT. METHOD USING A RULED PAPER STRIP IS ALSO DESCRIBED. TO
ELIMINATE THE INTERFERENCE OF PB PRIME2 POSITIVE, AG PRIME POSITIVE, HG
PRIME POSITIVE, NI PRIME2 POSITIVE, AND ZN PRIME2 POSITIVE IN THE LATTER
METHOD, THE UNKNOWN SOLN. IS TREATED WITH CL PRIME NEGATIVE AND SO SUB4
PRIME2 NEGATIVE SOLNS. AND FILTERED PRIOR TO TREATMENT WITH NH SUB4 HCO
SUB3. THE METHOD IS SENSITIVE TO 20 MUG CD PRIME2 POSITIVE-ML.
FACILITY: KIEV. POLITEKH. INST., KIEV., USSR.

UNCLASSIFIED

USSR

UDC 541.11

MIKHAYLOV, M. A., and EPOV, D. G., Department of Chemistry, Far Eastern Section, Siberian Division Acad. Sc. USSR, Vladivostok

"Kinetics of Thermal Decomposition of Ammonium Hexafluorozirconate and Hexafluorohafnate"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Khimicheskikh Nauk, No 12, Sep 70, pp 99-104

Abstract: The kinetics of thermal decomposition of $(\text{NH}_4)_2\text{ZrF}_6$ and $(\text{NH}_4)_2\text{HfF}_6$ in dry nitrogen atmosphere was studied in temperature range $290-430^\circ\text{C}$. The results may be described satisfactorily by the equation $3\sqrt{1-a} = Kt$. For $(\text{NH}_4)_2\text{ZrF}_6$ the activation energy was 11.0 Kcal/mole and for $(\text{NH}_4)_2\text{HfF}_6$ it amounted to 11.9 Kcal/mole. The intermediate products in above reaction are NH_4ZrF_5 and NH_4HfF_5 , the final products being ZrF_4 and HfF_4 . The ammonium hexafluorozirconate was found to be more stable thermally than the ammonium hexafluorohafnate.

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USSR

UDC: 624.012:539.4

PINADZHYAN, V.V., EPOYAN, A.O. and EPOYAN, R.O.

"Investigation of Anchor Length of Seven-Wire Strands in Light Concrete"

Yerevan, Nauch. Soobshch. Arm. NII Stroit. Materialov i Sooruzh.
(Scientific Reports of Armenian Research Institute on Construction Materials
and Structures), 1972, pp 111-118 (from Referativnyy Zhurnal-Mekhanika, 1973,
Abstract No 2V967 by the authors)

Translation: Results are presented of an experimental investigation of anchor
length of a seven-wire class P-7 strand of 15 mm diameter in light, lithoidal
pumice concrete, prestressed to 10,000-11,250 kg/cm², strength of squeezed
concrete 220-320 kg/cm², specific weight of concrete in air, dry about 1800 kg/cm³.
Investigation was conducted on four series of beams, six in each series, and on
five floor slabs for industrial buildings sized 1.5, 5.55 m. In accordance
with test results it is recommended to determine the anchor length of wire
strands in squeezed concrete of 300 kg/cm² strength by the SN and P standards; with
the concrete strength of 250 kg/cm² a correction coefficient of 1.1 should be
used.
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USSR

UDC: 624.012:539.4

PINADZHYAN, V.V., EPOYAN, A.O. and EPOYAN, R.O.

"Investigation of Anchor Length of Seven-Wire Strands in Light Concrete"

Yerevan, Nauch. Soobshch. Arm. NII Stroit. Materialov i Sooruzh.
(Scientific Reports of Armenian Research Institute on Construction Materials
and Structures), 1972, pp 111-118 (from Referativnyy Zhurnal-Mekhanika, 1973,
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Translation: Results are presented of an experimental investigation of anchor
length of a seven-wire class P-7 strand of 15 mm diameter in light, lithoidal
pumice concrete, prestressed to 10,000-11,250 kg/cm², strength of squeezed
concrete 220-320 kg/cm², specific weight of concrete in air, dry about 1800 kg/cm³.
Investigation was conducted on four series of beams, six in each series, and on
five floor slabs for industrial buildings sized 1.5, 5.55 m. In accordance
with test results it is recommended to determine the anchor length of wire
strands in squeezed concrete of 300 kg/cm² strength by the SN and P standards; with
the concrete strength of 250 kg/cm² a correction coefficient of 1.1 should be
used.

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USSR

UDC 616:003.87+616.5-003.8717-085.849.19.015

LAZAREV, I. R., EPSHTEYN, A. B., POLISHCHUK, YE. I., and ALPATYEVA, S. YU.,
Kiev Institute of Experimental and Clinical Oncology, Ukrainian Academy of
Sciences

"Laser Treatment of Bowen's Disease Associated With Fungus"

Kiev, Vrachebnoye Delo, No 4, 1972, pp 133-135

Abstract: Description of a case history of a 55-year-old female who had been suffering for 12 years from Bowen's disease (diagnosis histologically confirmed) did not respond to steroid or antibiotics therapy. Examination of biopsy material revealed the presence of the fungus Geotrichum. Eleven lesions on the abdomen, buttocks, back, upper and lower extremities were exposed to laser rays (total energy on each lesion 910 to 2760 joules). Coagulation necrosis occurred in each lesion in the form of a dry crust with slight edema, and hemorrhage and erythema of the surrounding tissue. These phenomena gradually subsided and the crusts darkened, became compact, and fell off within 3 to 5 weeks, leaving a pink smooth scar at the exposure site. Analysis of the blood and urine showed no abnormalities. No new lesions or traces of Geotrichum were detected in the follow-up period (duration not specified).

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Oscillators and Modulators

USSR

UDC 681.325

EPSHTEYN, A. D. and NAUMCHENKO, T. K., State All-Union Central Scientific Research Institute of All-Around Automation

"Ring Square Pulse Oscillator Made of Two Triggers"

USSR Author's Certificate No 304679, filed 14 January 1970, published 24 May 1971 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 17, 1971, No H 03k 3/64)

Translation: A ring square pulse oscillator made of two triggers and MDS transistors is introduced. It is distinguished by the fact that in order to insure the possibility of tuning the oscillator in a broad frequency range and to insure a minimum number of external parts when using microcircuits, the outputs of one of the triggers are connected via a capacitor to the diode anodes and the diode cathodes are connected to the common bus of the power supply.

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USSR

UDC: 681.3.06:51

KIZHNER, S. G., TOPORISHCHEVA, S. A., and EPSHTEYN, A. M.

"Program Control of Initial Data"

Tr. NII avtomob. prom-sti (Transactions of the Scientific Research Institute of the Automotive Industry) No 1(3), 1972, pp 3-6 (from RZh--Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 12, 1973, Abstract No 12B148)

Translation: Use of the electronic computer for solving problems connected with the processing of large masses of economics information requires effective control of the correct preparation of the initial data in the machine. One of the variants of initial data program control, designed for the class of documents in tabular form, is considered. One illustration. Resume.

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USSR

UDC 681.326:621.39

PSHENICHNIKOV, A. M., Candidate of Technical Sciences, and EPSHTEYN,
A. D., Engineer

"Operation Algorithms of Integrated Remote Control Systems"

Moscow, Priory i Sistemy Upravleniya, No 2, Feb 70, pp 7-12

Abstract: The operation algorithm is described for the control center equipment of an integrated multidirectional remote control system. This includes the operation algorithm of the control center device during the request for remote signaling, the transmission of remote control instructions, the request for telemeterings of integral parameter values, and the request for telemeterings of current parameter values. Operation algorithms are also given for the equipment of the control centers of the integrated remote control system, including the operation algorithm during the transmission of remote signaling, the receipt of remote control instructions with decision feedback, the transmission of telemeterings of integral parameter values. A study of the operation algorithm of the control center device shows

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PSHENICHNIKOV, A. M., Pribory i Sistemy Upravleniya, No 2, Feb 70, pp 7-12

that there is little difference in operation over tree and radial communication lines. The form of the algorithm, for all practical purposes, does not depend on the coding method and is identical for long- and short-range remote control devices. The principal operations in the request for and transmission and receipt of various types of information coincide. These features of the operation algorithms for an integrated remote control device show that devices of this type can be standardized, a capacity which is important in the construction of third-generation devices using microelectronic circuits.

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1/2 010 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--IMPROVEMENT IN ROTARY FURNACES FOR ROASTING CARBONACEOUS MATERIALS
-U-
AUTHOR--(03)--KHODUROV, E.I., MIKHLIN, A.E., EPSHTEIN, B.L.
COUNTRY OF INFO--USSR
SOURCE--TSVET. METAL. 1970, 43(2) 37-9.
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--ROASTING FURNACE, COKE, ANODE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1989/1918 STEP NO--UR/0136/70/043/002/0037/0039
CIRC ACCESSION NO--AP0108247
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0108247

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE OPERATION OF A 3-M DIAM TIMES 44-M LONG ROTARY FURNACE USED FOR PRODUCING ANODE MATERIALS WAS STUDIED, AND MATERIAL AND HEAT BALANCES WERE MADE. THE REACTIONS ARE SHOWN WHICH MAY BE RESPONSIBLE FOR THE LOSS OF COKE. THE EXHAUST GASES CONTAIN ONLY A SMALL AMT. OF CO; THIS INDICATES THAT THE REACTION, C PLUS O SUB2 EQUALS CO SUB2, MAY PREDOMINATE. THE REDUCE COKE LOSSES THE C MUST BE PREVENTED FROM INTERACTING WITH THE AIR O SUB2. INCREASING THE FUEL RATE, LOWERING THE HEATING TEMP., AND INCREASING THE GAS TIGHTNESS OF THE KILN DO NOT DECREASE THE COKE LOSS. IT IS RECOMMENDED THAT THE GASES FROM THE FIRE BOX CONTAIN MOSTLY CO SUB2, H SUB2 O, AND N SUB2.

UNCLASSIFIED

USSR

UDC: 621.318.435.3

OK EPSHTEYN
EPSHTEYN, B. Sh., KOBLENTS, Ya. G., YAKOVENKO, D. A., MORSHCHAKOV, V. A.,
ZEDIN'SH, O. R.

"Magnetically Controlled Commutating Element"

USSR Authors' Certificate No 249772, Filed 5 April 1968, Published 26 December 1969 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 7, 1970, Abstract No 7A25P, by V. M.).

Translation: A magnetically controlled commutating element is suggested, operating on the principle of the ferrode and containing a winding and a magnetic circuit with at least one aperture. In order to expand the capabilities and simplify the technology of production, the magnetic circuit is made closed, consisting of two (or more) parts of magnetically soft material, with a loop core of a ferrite with a rectangular hysteresis loop placed in the aperture of the magnetic circuit.

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USSR

UDC: 621.318.435.3

GORYACHEV, N. P., KOBLENES, Ya. G., MORSHAKOV, V. A., PABKIN, L. I.,
EPSHTEYN, B. Sh., YAKOVENKO, D. A.

"A Noncontact, Magnetically Controlled Diode"

V sb. Novyye beskontaktn. elektron. ustroystva. Ch. 1 (New Noncontact Electronic Devices--collection of works., Part 1), Moscow, 1970, pp 26-31 (from RZh-Avtomatika, Telerakhanika i Vychislitel'naya Tekhnika, No 11, Nov 70, Abstract No 11A26)

Translation: The authors present the characteristics and describe some designs of ferros whose principle of operation is analogous to that of a transformer with magnetization. A closed ferrod on a frame core made up of two L-shaped plates with a nonferromagnetic gap has low scatter of the output characteristics and high sensitivity. A ferrod designed on the basis of using a permanent magnet has inverse characteristics. A device with similar characteristics is a magnetically controlled diode designed around a standard ferrite bead with rectangular hysteresis loop located in the opening of a metallic magnetic circuit. Six illustrations, bibliography of four titles. Yu. Kh.

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1/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--PRINCIPLE IN THE TEACHING OF CHEMISTRY AS ILLUSTRATED BY A STUDY OF
THE SUBJECT -U-
AUTHOR-(02) EPSHTEYN, D.A., KHATSINSKAYA, YU.D.
CCOUNTRY OF INFO--USSR
SOURCE--KHIM. SHK. 1970, 25(1), 32-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, BEHAVIORAL AND SOCIAL SCIENCES
TOPIC TAGS--SULFURIC ACID, EDUCATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1562 STEP NO--UR/0509/70/025/001/0032/0039
CIRC ACCESSION NO--AP0125188
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125188

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. DIRECTIONS FOR TEACHING CHEMISTRY
IN RUSSIAN SCHOOLS ARE GIVEN.

UNCLASSIFIED

USSR

UDO 621.315.592

BALKAREY, YU.I., EPSHTEYN, E.M. [Institute Of Radio Engineering And Electronics,
Academy Of Sciences, USSR, Moscow]

"Effect Of A High-Frequency Electrical Field On Diffusion Of Carriers In Semi-
conductors"

Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972, pp 762-763

Abstract: It is shown that in the presence of a strong high-frequency electrical field, diffusion of carriers in a semiconductor is significantly changed. Specifically, this fact can be used for measurement of the diffusion length of carriers. Received by editors, 13 Oct 1971.

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USSR

UDC 539.293

ERSHTEYN E. M.

"Thermal Instability of a Semiconductor in a Laser Beam"

Gor'kiy, Izvestiya vysshikh uchevnykh zavedeniy, Radiofizika, Vol XV, No 1, 1972, pp 33-37

Abstract: A possible mechanism of avalanche temperature buildup under the effect of a laser beam which theoretically can lead to destruction of a crystal is considered. A study is made of the heat balance of a natural semiconductor in the presence of a laser beam with photon energy less than the width of the forbidden zone as a result of which the primary role is played by absorption by free carriers. There is a radiation power threshold above which stationary temperature distribution is impossible. In the case of standard values of the parameters, the threshold power ~1 kilowatt, and the instability development time $\sim 10^{-3}$ -1 second.

Relations are developed showing that for occurrence of the investigated instability operation of the laser in a practically continuous mode is required. The investigated mechanism cannot be responsible for destruction of transparent dielectrics by short (10^{-7} - 10^{-9} sec) laser pulses observed by other authors [Deystviye lazernogo izlucheniya (Laser Radiation Effects), edited by Yu. P. Rayzer, Mir Press, Moscow, 1968]. It can, however, be the

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USSR

EPSHTEYN, E. M., Izvestiya vysshikh uchevnykh zavedeniy, Radiofizika, Vol XV,
No 1, 1972, pp 33-37

primary cause of destruction under the effect of continuous radiation of
semiconductors with small photoelastic constants when the instability connected
with forced Mandelstamm-Brillouin scattering does not occur.

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Infrared Rays

USSR

UDC: 539.293

EPSHTEYN, E. M., Moscow Institute of Electronic Engineering

"Heating Conductivity Electrons with Infrared Radiation"

Gor'kiy, Izvestiya VUZ -- Radiofizika, Vol. 13, No. 9, pp 1398-1402

Abstract: The case is considered in which electrons in a semiconductor under infrared radiation are scattered basically by acoustical phonons, with a deformation mechanism, and the condition $E_g \gg h\Omega \gg k_B T \gg h\nu$, where E_g is the width of the forbidden zone, Ω is the frequency of the electromagnetic field surrounding the semiconductor, k_B is Boltzmann's constant, T is the temperature of the semiconductor crystal lattice, h is Planck's constant, and ν is the characteristic collision frequency between electrons and phonons. Beginning with the quantum kinetic equation for the electrons in a high-frequency electric field, the author finds a distribution function for the electrons and uses it for computing

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USSR

EPSHTEYN, E.M., Izvestiya VUZ - Radiofizika, Vol 13, No 9, pp 1398-1402

the electron gas energy and static conductivity under radiation. The assumptions are made that there is a constant electric field intensity in the direction of the infrared propagation, and that the high-frequency electric field causes only a small change in the distribution function. The constant field is assumed to be weak and consequently incapable of resulting in electron heating. The author expresses his gratitude to V. L. Bonch-Bruyevich and to the participants in the seminar led by the latter for their comments on the article.

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1/2 006 UNCLASSIFIED E PROCESSING DATE--30OCT70
TITLE--CHLOROMETHYLATION OF ALIPHATIC AROMATIC KETONES -U-
AUTHOR--(03)-UDOYEVA, G.A., EPSHTEYN, G.L., SUCHILIN, YE.G.
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(3), 478-80
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ALKYLATION, CHLORINATION, ALIPHATIC KETONE, AROMATIC KETONE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/1672 STEP NO--UR/0366/70/006/003/0478/0480
CIRC ACCESSION NO--AP0112666
UNCLASSIFIED

2/2 006

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112666

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHLOROMETHYLATION OF PHCOME, 4,CLC SUB6 H SUB4 COME, OR 3,4,ME SUB2 C SUB6 H SUB3 COME IN THE PRESENCE OF H SUB3 PO SUB4 GAVE 58-61PERCENT RCOCH SUB2 CH SUB2 CL (R IS PH, 4,CLC SUB6 H SUB4, OR 3,4,ME SUB2 C SUB6 H SUB3). HOWEVER, THE CHLOROMETHYLATION OF 2,4,6,ME SUB3 C SUB6 H SUB2 AC GAVE 70PERCENT 2,4,6,3,ME SUB3 (CLCH SUB2) C SUB6 HAC, DUE TO HINDERING BY ME GROUPS IN 2,6 POSITIONS. FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 539.374

VERETENNIKOV, S. V., KRASIKOV, K. I., KOVOBRATSKIY, R. L., PERPER, R. A.,
POLYAK, S. M., UHANSKIY, YA. S., USIKOV, M. P., EPSHTEYN, G. N.

"Effect of an Impact of a Part of a Matrix Under Impulse Distortion"

V sb. Vysokoskorostn. deformatsiya (High-Speed Deformation -- Collection of Works),
Moscow, "Nauka", 1971, pp 108-109 (from RZh-Mekhanika, No 3, Mar 72, Abstract
No 3V653)

Translation: The structure and mechanical properties of nickel, nichrome (NKh7) and Kh19Ni10T steel after hydraulic impulse stamping with impact and without impact of the parts of the matrix were investigated. It was established that collision occurs in a closed matrix and the central zone of the part undergoes the strongest impact. The impact of a part of thickness 2 mm causes strengthening of the material in the middle of the thickness of the part and weakening in the zone of a depth up to 0.3 mm from the side of the surface of the part contacting the matrix which is connected with nonuniform plastic deformation in the impact process. The weakening effect is supported by results of studying parts of thickness 0.3 mm that have first undergone collision with the matrix. Authors abstract.

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USSR

UDC 539.3/.5

EPSHTEYN, G. N. and KLYBYSHEV, O. A.

"High-Speed Deformation and Structure of Metals"

"Metallurgiya," Moscow, 1971, 200 pages, illustrated, price 1 ruble, 32 kopeks (from RZh-Fizika, No. 9, 1971, Abstract No. 9E464)

Translation: Chapter 1, Modern methods of high-velocity deformation. Chapter 2, Sliding under high-velocity deformation conditions. Chapter 3, Twinning under high-velocity deformation conditions. Chapter 4, Strengthening of metals in high-velocity deformation. Chapter 5, High-velocity deformation and phase transformations in metals.

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USSR

UDC:539.669.295

EPSHTEYN, G. N., Moscow Institute of Steels and Alloys, Department of
X-Ray Studies and Metal Physics

"Specifics of Mechanism of High-Speed Deformation of Titanium"

Ordzhonikidze, Izvestiya Vysshikh Uchevnykh Zavedeniy, Tsvetnaya
Metallurgiya, No 1, 1971, pp 152-153

Abstract: Deformation of titanium at various rates was studied, from quasistatic to shock-wave deformation. It is demonstrated that twinning, characteristic of high-speed deformation, leads to a very sharp drop in the level of stress in microvolumes. Consequently, after twinning has occurred, the level of stress decreases to the extent that the necessary conditions are no longer present for slipping. Thus, in comparing the mechanism of deformation at quasistatic and shock-wave speeds, we should speak not of the decrease in the number of slipping systems, but rather of the replacement of one mechanism of deformation with another.

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66 -

Instrumentation and Equipment

USSR

UDC 536.62

SIKOROV, V. N., UMANSKIY, Ya. S., and EPSHTEYN, G. N., Moscow Institute of Steel and Alloys

"High-Temperature Microcalorimeter for Studying Thermal Phenomena in Metals and Alloys"

Moscow, Zavodskaya Laboratoriya, Vol 36, No 9, 1970, pp 1132-1134

Abstract: A number of models of heat-conducting differential microcalorimeters of the Calvet type designed for operation at 20-300°C are known. However, in studying thermal phenomena in many metals and alloys, heating to higher temperatures is required. The authors have built and used a Calvet microcalorimeter for operation under isothermal conditions in the temperature range of 20-800°C. The structure and operating characteristics of this device are discussed.

The microcalorimeter can be used to study the thermal effects of the processes of recrystallization, recovery, aging, phase conversions, and other physical and physico-chemical phenomena. The diameter of the calorimetric cell is 28 mm, which permits samples of large cross section to be used. The ratio 1/2

USSR

SIKOROV, V. N., et al, Zavodskaya Laboratoriya, Vol 36, No 9, 1970, pp 1132-1134

of the cell diameter to the height is 1:2.5 instead of the ratio of 1:8 recommended by Calvet, but the sensitivity of the calorimeter is very high for platinum rhodium and gold palladium or chromel-alumel thermopiles. The accuracy of determining the thermal effects is 2-2.5%.

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USSR

UDC 669.24:539.370

~~EPSTEIN, G. N.~~ ^E and KAZACHKOV, I. V., Moscow Institute of Steel and Alloys
"High-Speed Deformation of Nickel Single Crystals"

Sverdlovsk, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 29,
No 1, Jan 70, pp 212-215

Abstract: An investigation was made of the effect of the high-speed deformation of nickel single crystals (99.97%). Samples cut from a crystal were polished electrolytically in 60% sulfuric acid and vacuum annealed at 550°C. The orientation of samples was determined by X-ray diffraction. Three crystal orientations were used, in tests: the first close to [110], the second [111], and the third [112]. These orientations coincided with the strain direction. The impulse strain was applied at a speed of 10^4sec^{-1} by an electromagnetic device. For comparison, samples were subjected to a quasi-static strain at a speed of 10^{-2}sec^{-1} . Samples with up to 20% deformation were investigated. The variation of the physical width of the β line, the disorientation of blocks of coherent dispersion, and the variation of single crystal orientation were determined by X-ray diffraction. This investigation confirmed the earlier finding that the impulse strain contributed to the action of a greater number of slip systems. Orig. art. has: 5 figures.

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1/2 034 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--HIGH SPEED DEFORMATION OF NICKEL SINGLE CRYSTALS -U-
AUTHOR--EPSHTEYN, G.N., KAZACHKOV, I.V. **E**
COUNTRY OF INFO--USSR
SOURCE--FIZ. METAL. METALLOVED. 1970, 29(1) 212-15
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--METAL DEFORMATION, DEFORMATION RATE, METAL SINGLE CRYSTAL,
NICKEL ALLOY, HIGH PURITY METAL, ELECTROLYTIC METAL POLISHING

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0627 STEP NO--UR/0126/70/029/001/0212/2215
CIRC ACCESSION NO--AP0105606
UNCLASSIFIED

2/2 034

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0105606

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PURE NI SINGLE CRYSTALS (99.97PERCENT PURE) GROWN BY DRAWING FROM THE MELT WERE USED IN THIS STUDY. SAMPLES SECTIONED FROM THE CRYSTAL WERE POLISHED ELECTROLYTICALLY IN 60PERCENT H SUB2 SO SUB4 AND ANNEALED AT 550DEGREES IN VACUUM. THE (110), (111), AND (112) ORIENTATIONS WERE SELECTED FOR THIS STUDY. THE SAMPLES WERE DEFORMED UP TO 20PERCENT. MICROHARDNESS WAS STUDIED ON ALL SINGLE CRYSTALS. FOR SINGLE CRYSTALS WITH THE (110) AND (111) ORIENTATIONS, THE STRENGTHENING AFTER THE PULSE AND THE STATIC LOADING IS THE SAME, WHICH IS CONFIRMED BY THE HARDNESS AND THE WIDTH OF THE X RAY LINE MEASUREMENTS. THE RESULTS OBTAINED ARE COMPREHENSIBLE WHEN EXAMD. TOGETHER WITH THE SCHMIDT ORIENTATION FACTOR FOR THE 12 SLIP SYSTEMS. THE PRESENT WORK CONFIRMS THE PREVIOUSLY OBTAINED CONCLUSIONS ON POLYCRYST. SAMPLES CONCERNING THE FACT THAT PULSE DEFORMATION PUTS INTO ACTION A LARGER NO. OF SLIP SYSTEMS. THIS CAN, HOWEVER, BE ACCOMPLISHED ONLY IN CRYSTALS WHICH ARE ORIENTED RELATIVE TO THE ACTING FORCE IN SUCH A WAY THAT A LARGE NO. OF SLIP SYSTEMS CAN BE PUT INTO ACTION. THIS HOLDS TRUE FOR CRYSTALS WITH ANY GIVEN TYPE OF LATTICE.

UNCLASSIFIED

USSR

UDC 612.273.2+616-003.96

EPSHTEYN, I. M., ALLIK, T. A., KOROBKOV, A. V., AYDARALIYEV, A. A.,
DEHUNUSHEV, K. D., AND KUTLEV, A. N., All-Union Scientific Research Institute
of Physical Education, and Kirgiz State Medical Institute

"Adaptation Mechanisms of the Cerebral Cortex and of Skeletal Muscles to
Hypoxia"

Frunze, Sovetskoye Zdravookhraneniye Kirgizii, No 2, Mar/Apr 72, pp 7-10

Abstract: The utilization of oxygen by the cerebral cortex and skeletal
muscles was determined on the basis of the rate constant of oxygen consump-
tion (RCOC). The control group of rats was kept in Frunze and the experimental
group was taken to a 3,200 m elevation, where pO_2 was 103 mm Hg. Consump-
tion of oxygen by the brain tissues was recorded by platinum electrodes
implanted at a depth of 500 μ . The RCOC by the brain cells was 0.0119,
0.0073, 0.0077, 0.0084, 0.0042, 0.0044 on the 3d, 10th, 20th, 30th, 45th,
and 60th days at 3,200 m, respectively (controls 0.0055). Physical exercises
(30 min on treadmill) changed these values to 0.0109, 0.0050, 0.0042,
0.0038, 0.0046, 0.0044, respectively (control 0.0034). The RCOC of the calf
muscles was 0.0300, 0.063, 0.073, 0.11, 0.23, 0.24 without exercises
(control 0.091), and 0.161, 0.161, 0.178, 0.18, 0.17, 0.18 (control 0.148)
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USSR

EPSHTEYN, I. M., et al., Sovetskoye Zdravookhraneniye Kirgizii, No 2,
Mar/Apr 72, pp 7-10

with exercises. A lower RCOG in the cerebral cortex than in the calf muscles is attributed to the presence of glial cells in the brain which are characterized by a slow oxidative process. The physical exercises inhibited to some extent the oxidative processes in the brain, although the initial adaptation stages to the hypoxia are characterized by acceleration of the excitation processes in the cerebral cortex. Sharply reduced oxygen consumption by the calf muscles during the first several days at 3,200 m is attributed to low permeability of the muscle fibers by oxygen. The oxidative activity in the same muscles increased considerably after physical exercises. Evidently the physical load is more powerful factor than hypoxia with respect to oxygen consumption by muscles.

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Acc. Nr: AP0052066EPSTEYN I M.
Ref. Code: 1/R0396

PRIMARY SOURCE: Patologicheskaya Fiziologiya i
Eksperimental'naya Terapiya, 1970, Vol 14,
Nr 1, pp 29-33

OXYGEN TENSION IN THE WALL OF THE STOMACH. SMALL AND LARGE
INTESTINE UNDER NORMAL AND PATHOLOGICAL CONDITIONS

A. P. Krendat', I. M. Epstein, S. V. Yeliseyeva.

A total of 36 acute experiments were carried out on cats. Using a copper amalgamated electrode pO_2 was determined in the wall of the stomach, small and large intestine. The highest initial pO_2 level was found in the wall of the small intestine, and the lowest—in the large intestine, the stomach occupying an intermediary position. Under pathological conditions (hyper- and hypoxia, hypervolemia, ischemia) alteration of pO_2 level in the wall of the small intestine considerably exceeded these changes in the wall of the stomach and large intestine. The fall of pO_2 caused by blood letting and ligation of the vessels can be compensated by giving pure oxygen to inhale. Different conditions of oxygen supply of the stomach and intestine are apparently conditioned by peculiarities attending the blood supply and the metabolism of these organs.

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REEL / FRAME
19820604

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USSR

UDC: 62-55

EPSHTEYN, I. Ya.

"Device for Regulating the Insensitivity Zone of a Control System"

USSR Author's Certificate No 288440, filed 16 Oct 67, published 10 Mar 71 (from RZh-Avtomatika, telemekhanika i vychislitel'naya tekhnika, No. 12, 1971, Abstract No 12A157P)

Translation: The known device (see Ref. 90525.986P) for controlling the insensitivity zone of a control system contains polarized relays. The proposed device differs in that an additional resistor is shunted across the feed circuit of the polarized relay bias windings and connected in series with the contacts of the intermediate relays. The device contains two polarized relays, their controlling windings sensing the deviation of the controlled quantities, including the inverse current setting up the magnetic flux Φ_0 which interacts with the magnetic fluxes Φ_{em} created by the bias windings and fed by d-c voltages, with summation occurring in one of the relays and subtraction in the other. In such a circuit, overshoot of the relay contact takes place only when the summing (algebraic) magnetic flux is greater or equal to the

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USSR

UDC: 62-55

EPSHTEYN, I. Ya., USSR Author's Certificate No 288440

relay starting current. The contact of the polarized relay is then motionless. With the closing of the contact, the intermediate relay opens its grounded contact, and a shunting resistor is added to the bias winding in series with the contacts of the intermediate relays. By changing the size of the resistor, one can vary the nonuniformity zone, and by regulating the feed voltage, one can vary the insensitivity zone. After opening the contact, the grounded contact of the intermediate relay opens, and the bias flux becomes most important. The operation of the polarized relay in changing the polarity of the control signal is similar.

Resume

2/2

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1/2 031 UNCLASSIFIED E PROCESSING DATE--13NOV70
TITLE--SPECTRAL STUDY OF THE ELECTRON DONOR CAPACITY OF TRIETHYL PHOSPHITE
AS A METHOD FOR EVALUATING THE PURITY OF PHOSPHITES -U-
AUTHOR--(05) EPSHTEYN, L.M., NOVIKOVA, Z.S., ASHKINADZE, L.D., RUBASHEVA,
L.A., KAZINSKYA, L.A.
COUNTRY OF INFO--USSR E

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 689-90

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRON DONOR, ALKYL PHOSPHITE, CHEMICAL PURITY, HYDROGEN
BONDING, COMPLEX COMPOUND, ABSORPTION BAND SPECTRUM, ETHANOL,
FLUORINATED ORGANIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0082

STEP NO--UR/0062/70/000/003/0689/0690

CIRC ACCESSION NO--AP0125916

UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125916

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SINCE THE FORMATION OF H BOND BETWEEN ETOH AND P(OET) SUB3 RESULTS IN A H COMPLEX WHICH GIVES AN ABSORPTION BAND AT 3560 CM PRIME NEGATIVE1 WITH A SHOULDER AT 3480 CM PRIME NEGATIVE1 (E., ET AL., 1969) THE APPEARANCE OF THE LATTER HAD BEEN SUGGESTED TO BE THE RESULT OF 2 TYPES OF SUCH COMPLEXES. HOWEVER SUCH A SHOULDER MAY BE CAUSED BY A SMALL ADMIXT. OF ET SUB3 PD SUB4 WHICH CANNOT BE DETECTED BY THE SPECTRAL METHOD DIRECTLY. CAREFULLY PURIFIED P(OET) SUB3 AND ETOH GAVE AN IR SPECTRUM IN WHICH THE HO BAND WAS SYMMETRIC, BUT A BRIEF CONTACT WITH AIR RESULTED IN SHOULDER FORMATION AT 3460 CM PRIME NEGATIVE1 AT THE FREQUENCY AT WHICH THE COMPLEX OF ETOH AND ET SUB3 PD SUB4 HAS A BAND. TO EVALUATE THE SENSITIVITY OF THIS BAND THE SUITABLE CALIBRATION RUNS WERE MADE AND ET SUB3 PD SUB4 AT 0.07 MOLES-L. RESULTS IN THE SHOULDER OF THE BAND AT 1280 CM PRIME NEGATIVE1 WHILE AT 0.01-0.02 MOLES-L. THIS CAN NO LONGER BE OBSERVED, BUT THE ASYMMETRY OF THE 3460 CM PRIME NEGATIVE1 BAND IS STILL CLEARLY VISIBLE. CF SUB3 CH SUB2 OH IN PLACE OF ETOH ALLOWED SPECTROSCOPIC DETECTION OF ET SUB3 PD SUB4 EVEN AT 0.005 MOLES-L. THE INTEGRAL INTENSITY OF THE BAND OF THE COMPLEX OF ETOH WITH P(OET) SUB3 (3 TIMES 10 PRIME4 L. M PRIME NEGATIVE1 CM PRIME NEGATIVE1) WAS SMALLER THAN THAT OF ETOH WITH HC(OET) SUB3 (3.5 TIMES 10 PRIME4); CF SUB3 CH SUB2 OH GAVE SIMILAR RESULTS. THUS P(OET) SUB3 IS LESSEFFECTIVE ELECTRON DONOR IN RESPECT TO ALCS. THAN IS HC(OET) SUB3. FACILITY: INST. ELEMENTORG. SOEDIN, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 543.42-547.241

EPSHTEYN, L.M., NOVIKOVA, Z.S., ASHKINADZE, L.D., RUBASHEVA, L.M., KAZITSYNA, L.A.,
Institute of Organo Elemental Compounds, Moscow, Academy of Sciences USSR

"Spectral Investigation of the Electron-Donor Capacity of Triethyl Phosphite as a
Method of Evaluating the Purity of Phosphites"

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Khimicheskaya, No 3, Mar '70, pp 689-690

Abstract: When ethanol forms a hydrogen bond with triethylphosphite, the absorption band for the H-complex (3560 cm^{-1}) has a secondary peak at about 3480 cm^{-1} . It was found that the asymmetry of the absorption band is due to a slight admixture of triethylphosphate. The amount of impurity was determined by studying the ternary triethylphosphite-triethyl-phosphate-ethanol system. The spectral method used for quantitative determination can detect a phosphate impurity of the order of 0.005 M/l in the H-complex. A study of the electron-donor capacity of triethylphosphite and its carbon analog orthoformic ether as compared with H-acids showed that the integral intensity of the band of the H-complex of ethanol with triethylphosphite is less than with orthoformic ether. The frequency shifts as compared with ν_{OH} of free ethanol are 82 and 87 cm^{-1} respectively. A similar pattern is observed when a stronger proton donor -- trifluoroethanol -- is used. The reasons for the reduction in the proton acceptor properties of triethylphosphite as compared with its carbon analog are now being investigated.

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E. Mathematical Modeling of Thought Processes

USSR

UDC: 8.74

TSYPKIN, Ya. Z., KEL'MANS, G. K., EPSHTEYN, L. Ye.

"Teachable Automatic Systems"

Moscow, Tr. IV Vses. soveshch. po avtomat. upr. tekhn. kibernet., 1968. Optimal'n. i adaptivn. sistemy (Works of the Fourth All-Union Conference on Automatic Control [Technical Cybernetics], 1968. Optimum and Adaptive Systems), "Nauka", 1972, pp 182-193. Discussion pp 298-302 (from RZh-Kibernetika, No 5, May 73, abstract No 5V827 by the authors)

Translation: Teachable automatic systems are characterized by the capacity to improve their behavior (and properties) in the process of functioning. This paper discusses the principle of optimizing teachable automatic systems and reveals their possibilities and peculiarities.

The functioning of teachable automatic systems is based on algorithms of instruction in classifying observed situations (patterns).

The peculiarities and complexity of classifying situ-

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USSR

TSYPKIN, Ya. Z. et al., Tr. IV Vses. soveshch. po avtomat. upr. tekhn. kibernet., 1968. Optimal'n. i adaptivn. sistemy, "Nauka", 1972, pp 182-193, discussion pp 298-302

ations are determined to a considerable extent by the volume of a priori information. Based on minimizing a general functional of the type of average risk of erroneous classification, algorithms are obtained for classifying situations for different a priori and current information (algorithms with and without incentive).

It is shown that with special forms of loss functions both presently known and new algorithms of instruction and self-teaching can be obtained. The algorithms are used for constructing teachable control systems and an adaptive receiver of pulse signals.

The paper presents the results of an experimental study of an adaptive receiver. Bibliography of 20 titles.

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USSR

UDC: 681.335.8

EPSHTEYN, L. Ye., FEDIN, Yu. N., Institute of Automation and Remote Control (Technical Cybernetics)

"A Device for Realizing Functional Relations"

USSR Author's Certificate No 318960, filed 16 Dec 69, published 24 Jan 72
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 7, Jul 72, Abstract No 7B497 P)

Translation: The invention can be used in analog technology, particularly in realizing blocks with transfer characteristics which are controllable over a wide range with respect to time or input signal parameters. A voltage-controlled device is known for realizing functional relations based on a photoresistor. However, the method used for constructing the controllable elements in the conventional device limits the range of realizable functions by the use of only differential (binary) photoresistors. Besides this, due to the considerable technological spread of parameters of the photoresistors, the beads must be individually selected in the conventional device when constructing a given module. The purpose of the invention is to eliminate the initial technological sorting

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USSR

EPSHTEYN, L. Ye., FEDIN, Yu. N., USSR Author's Certificate No 318960

of photoresistors and to use practically any type of serially produced industrial photoresistors, thus increasing accuracy and extending the limits of the functional possibilities of the device. This goal is achieved by connecting the functional converter between the photoresistor and one of the inputs of the comparison module. This functional converter is a high-frequency circuit for monitoring and transforming the value of the photoresistor. The circuit contains an oscillator whose frequency is outside the frequency band of the input signal, a transformer-transducer, an AC amplifier, and a high-linearity detector. In realization of the device, a procedure is used which is analogous to the method of probe action in which an additional high-frequency loop is introduced into the main system to obtain information on the state of the object and produce optimum controlling actions which guarantee a position of the characteristic of the object which is close to the required point.

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- 16 -

USSR

UDC 621.383.29.032.11

EPSHTEYN, M. I.

"Spectral Measurements in Electrovacuum Technology"

Spektral'nyy izmereniya v elektrovakuumnoy tekhnika (cf. English above), Moscow, "Energiya," 1970, 143 pp, ill., 43 k (from RZh--Elektronika i yeye primeneniye, No 5, Abstract No 5A182K)

Translation: The book is devoted to methods of spectral and energy measurements of electrovacuum devices which appear as sources or detectors of optical radiation: various forms of tubes, electron-beam devices, photoelectric devices and so on. The spectral range considered includes the ultraviolet, visible, and the close to infrared regions of the spectrum (0.16-2.0 micrometer). Examples are given of the solution of concrete problems with respect to the determination of the parameters and characteristics of the devices. The book, intended for a wide circle of engineering and technical personnel who are occupied with the development, manufacture, and use of sources and detectors of radiation, can be useful for students. Annotation.

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USSR

UDC 681.333

GULINA, N. P., and EPSHTEYN, M. S.

"A Device for Determining the Trajectories of Charged Particles"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 8, 1970, p 121, patent No 264008, filed 24 Jan 68

Abstract: This Author's Certificate introduces a device for determining the trajectories of charged particles in a Cartesian coordinate system. The unit contains an electrolytic bath, a moving probe head which acts as a field pickup, and a computer device. As a distinguishing feature of the patent, the accuracy of data readout from the surface of the electrolyte is improved by making the probe head in the form of two electrodes located at a fixed distance from each other and oriented along one of the coordinate axes. The electrodes are connected respectively to a unit for calculation of the component of the potential gradient along the selected axis and to a unit for calculation of the potential at the given point.

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USSR

UDC 577.153:612.8.015.612.744

SIMONOVA, N. Ya., and EPSHTEYN, S. F., Institute of Biochemistry, Academy of Sciences, Ukrainian SSR, Kiev

"Study of the Cholinesterase Activity in Nerves and Subcellular Fractions of Skeletal Muscles of Rabbits with Reversible Distruption of the Motor Functions of Muscles"

Kiev, Ukrainskyy Biokhimicheskiy Zhurnal, Vol 42, No 4, 1970, pp 417-423

Abstract: Resection of the motor cortex in rabbits causes morphological shifts in the nerve and disturbs nerve impulse transmission to the muscle during the first few days after surgery. These shifts gradually disappear and after 2 months the nerve structure and conductivity become normal. An investigation was carried out to determine total cholinesterase in the nerve and true acetylcholinesterase in homogenate and subcellular fractions of rabbit skeletal muscles (myofibrillar-nuclear, mitochondrial, and microsomal) at various times after surgery. A decrease in acetylcholinesterase activity was noted 2 days after surgery in all cellular fractions except the myofibrillar-nuclear fraction. The greatest decrease in cholinesterase activity in the myofibrillar-nuclear and mitochondrial fractions was observed a month after surgery and in the microsomal, 2 weeks after surgery. Cholinesterase activity returned to normal 2 months later.

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USSR

SIMONOVA, N. Ya and EPSHTEYN, S. F., Ukrainskyy Biokhimicheskiy Zhurnal, Vol 42, No 4, 1970, pp 417-423

In the nerve homogenate, activity increased sharply 2 days after surgery, reached a maximum after 2 months, and then declined to the normal level during the following 2 months. It is concluded that resection of the motor cortex is accompanied by a change in cholinesterase activity in subcellular fractions of the skeletal muscles and homogenates of rabbit muscles and nerves and that this activity eventually returns to the normal level.

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USSR

UDC: 621.317.738

GESSEN, G. V., MOROZOV, Yu. G., EPSHTEYN, S. L.

"A Device for Measuring the Parameters of Thin Dielectric Films"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 7, Mar 72, Author's Certificate No 529483, Division G, filed 19 May 70,
published 9 Feb 72, p 181

Translation: This Author's Certificate introduces a device for measuring the parameters of thin dielectric films such as the permittivity and the loss tangent. The device contains two electrodes with the film to be measured between them. As a distinguishing feature of the patent, measurement accuracy is improved by covering the working surface of one of the electrodes with a layer of current-conducting rubber and making the working surface of the other electrode in the form of a convex spherical segment.

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USSR

UDC: 621.317.733.011.4:681.3

SAMOYLOV, N. Ya., EPSHTEYN, S. L.

"Some Problems of Circuit Classification of Digital Capacitance Meters"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 56-59 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A350)

Translation: Digital capacitance and loss tangent meters which have been developed and are now being used are briefly classified. The first group (the oldest) is comprised of instruments based on classical four-leg bridges. This group has given way to a more improved category based on transformer bridges; instruments in this class have been more extensively used. Measurement modules have been further developed in the instruments of the third group, which utilize parallel current and voltage dividers and operational amplifiers. The advantages of such instruments are pointed out. Typical structures of the modern measurement modules in the instruments are presented. The latest trends in development of these instruments are indicated. Two illustrations, bibliography of four titles. E. L.

1/1

USSR

UDC: 621.317.335:539.216.2

SEMENOV, Yu. P., GUSHCHINA, T. M., EPSHTEYN, S. L., SHVEDOV, G. A.

"Determination of the Dielectric Characteristics of Thin Films"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 110-115 (from RZh--Radiotekhnika, No 1, Jan 71, Abstract No 1A355)

Translation: Methods of determining the permittivity and loss angle of dielectric films used in capacitor construction are briefly classified. The peculiarities of various groups of methods are examined; the authors propose and study a noncontact method which does not require a preliminary determination of film thickness. The procedure is described and its error is indicated. Contact methods using electrodes in the molten state are most suitable for single-layer thin film specimens. A measurement cell with special electrodes of In-Ca-Zn alloys has been developed for use with this method; the design of the cell is described, and its basic technical characteristics are given. A table of measurement results is presented. Bibliography of one title. E. L.

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1/2 016 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--RESTORATION OF AUTOMATIC COUPLINGS BY MECHANIZED BUILDING UP -U-

AUTHOR--(03)--VOLFOVSKAYA, F.S., GUTMAN, L.M., EPSHTEYN, S.S.

COUNTRY OF INFO--USSR

SOURCE--AVTOMAT. SVARKA, FEB. 1970, (2), 52-54.

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL SURFACING, WELD FACING, LOCOMOTIVE, RAILWAY ROLLING
STOCK, MECHANICAL COUPLING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0316

STEP NO--UR/0125/70/000/002/0052/0054

CIRC ACCESSION NO--AP0124075

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124075

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN IMPROVED BUILDING UP TECHNOLOGY FOR RESTORING WORN PARTS OF THE AUTOMATIC COUPLINGS OF RAILWAY WAGONS AND LOCOMOTIVES IS DESCRIBED. THE BUILDING UP PROCESS IS FULLY MECHANIZED; IT IS CARRIED OUT UNDER FLUX OR WITH A POWDER WIRE, WITHOUT ANY SUPPLEMENTARY PROTECTION FROM THE EFFECTS OF THE ATMOSPHERE. A SLIGHT DEGREE OF MECHANICAL FINISHING MAY BE REQUIRED AFTER THE BUILDING UP OPERATION.

UNCLASSIFIED

USSR

RAYZER, Yu. P., MUL'CHENKO, B. F., EPSTEIN, V. A., Institute of Problems in Mechanics, USSR Academy of Sciences

"Investigation of a High-Pressure Laser Spark Ignited by an Extraneous Plasma Source"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, December, 1970, pp 1975-82

Abstract: A laser spark in argon at pressures up to 80 atm is ignited by an extraneous plasma source, the intensity of the supporting radiation far below the breakdown threshold. The threshold power of the radiation from a ruby laser required for maintaining the plasma is determined for pressures ranging from 16 to 80 atm and is found to lie between 70 and 10 kw. The plasma temperature (18 000-33 000°) and other parameters are measured. The results are in agreement with the theoretical calculations.

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1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--EFFECT OF THE TYPE OF CHEMICAL BONDS ON THE STRENGTH OF RUBBERS
OBTAINED BY CURING WITH ALKYLPHENOL FORMALDEHYDE RESIN -U-
AUTHOR--(04)--NIKITIN, YU.N., LEPSHTEYN, V.G., KOROBOV, V.I., TUKTAROVA, L.S.
COUNTRY OF INFO--USSR
SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 3, PP 403-408
DATE PUBLISHED--70
SUBJECT AREAS--MATERIALS, CHEMISTRY
TOPIC TAGS--CHEMICAL BONDING, VULCANIZATE, MECHANICAL STRENGTH, CURING
AGENT, PHENOL FORMALDEHYDE RESIN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1583 STEP NO--UR/0069/70/032/003/0403/0408
CIRC ACCESSION NO--AP0125205
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125205

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STRONG AND RELATIVELY SHORT CROSS LINKS IN THE STRUCTURE OF UNFILLED VULCANIZATES FROM CRYSTALLIZING RUBBERS OBTAINED BY CROSS LINKING WITH ALKYLPHENOLFORMALDEHYDE RESIN DO NOT HINDER THE ORIENTATION CYRSTALLIZATION OF MOLECULAR CHAINS IF THE STRUCTURE OF VULCANIZATES IS SUFFICIENTLY HOMOGENEOUS. THESE VULCANIZATES HAVE HIGH STRENGTH PROPERTIES. THE PRESENCE OF RESIN CROSS LINKS WITH ETHER GROUPS, WHICH ARE MORE LABILE UNDER THERMO MECHANICAL TREATMENT, ENHANCES APPRECIABLY THE STRENGTH PROPERTIES OF VULCANIZATES BASED ON NCN CRYSTALLIZING, AND TO A LESSER EXTENT, OF THOSE BASED ON CRYSTALLIZING RUBBERS. FACILITY: NII MONOMEROV DLYA SINTETICHESKOGG KAUCHUKA, YAROSLAVL'.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--FORMATION OF RESINOUS STRUCTURES IN RUBBERS DURING VULCANIZATION
AND THEIR EFFECT ON REINFORCEMENT -U-
AUTHOR--(04)--BURAKOVA, N.N. EPSHTEYN, V.G., YEMELYANDV, D.P., BABYUK, D.N.
COUNTRY OF INFO--USSR
SOURCE--KGLLOIDNYY ZHURNAL, 1970, VOL 32, NR 3, PP 337-341
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--MOLECULAR STRUCTURE, FORMALDEHYDE, POLYMER CROSS LINKING,
RUBBER, VULCANIZATION
CONTRCL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAHE--2000/2152 STEP NO--UR/0069/70/032/003/0337/0341
CIRC ACCESSION NO--AP0125735
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125735

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBILITY HAS BEEN STUDIED OF THE FORMATION OF RESINOUS STRUCTURES IN RUBBER DURING VULCANIZATION AS THE RESULT OF INTERACTION OF PHENOLIC RESINS (RESORCINOL FORMALDEHYDE OR LIGNIN) WITH RESOTROPIN. IN THIS CASE RUBBER REINFORCEMENT DEPENDS ON THE AMOUNT OF RESIN FORMING COMPONENTS IN THE MIX. ADDITION OF A RESIN FORMING SUBSTANCE (RESOTROPIN) MIXED WITH SMALL AMOUNTS OF RESIN ENSURES THE FORMATION DURING VULCANIZATION OF SECONDARY CHAIN STRUCTURES FROM RESIN PARTICLES AS THE RESULT OF THEIR CHEMICAL COMBINATION.

FACILITY: YAROSLAVSKIY TEKHNOLOGICHESKIY INSTITUT.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--QUANTITATIVE STUDY OF CRYSTALLIZATION IN CHLOROPRENE RUBBERS AND
VULCANIZATES -U-
AUTHOR--(03)-KOSTRYKINA, G.I., ZAKHAROV, N.D., EPSHTEYN, V.G.
COUNTRY OF INFO--USSR
SOURCE--ZAVOD. LAB. 1970, 36(2), 179-80
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--CRYSTALLIZATION, CHLOROPRENE, SYNTHETIC RUBBER, VULCANIZATE,
IR SPECTRUM, ELONGATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1995/1472 STEP NO--UR/0032/70/036/002/0179/0180
CIRC ACCESSION NO--AP0116909
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116909

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CRYST. BANDS IN THE IR SPECTRUM AT 955 AND 755 CM PRIME NEGATIVE1 WERE USED TO DET. THE CRYSTALLINITY OF POLYCHLOROPRENE (I) FILMS, AND THE METHOD WAS CHECKED AGAINST THE DILATOMETRIC PROCEDURE AND REPORTED DATA. THE RATE AND MAGNITUDE OF I ELONGATION AFFECT ITS CRYSTALLINITY; E.G., I PREHEATED TO 80DEGREES AND THEN ELONGATED AT ROOM TEMP. AT 1200 MM PER MIN HAD TWICE THE CRYSTALLINITY OF I ELONGATED AT 200 MM PER MIN. FACILITY: YAROSLAV. TEKHNOL. INST., YAROSLAVL, USSR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--THERMAL BREAKDOWN OF RUBBER IN SUPERHEATED WATER VAPOR AT
ATMOSPHERIC PRESSURE -U-
AUTHOR--(05)-MAKAROV, V.M., EPSHTEYN, V.G., ZAKHAROV, N.D., MAKAROV, M.M.,
KALOSHINA, A.V.
COUNTRY OF INFO--USSR
SOURCE--KAUCH. REZINA 1970, 29(2), 25-7
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--THERMAL DECOMPOSITION, STYRENE, WEAR RESISTANCE, SYNTHETIC
RUBBER/(U)SKMS50ARKM15 STYRENE RUBBER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0387 STEP NO--UR/0138/70/029/002/0025/0027
CIRC ACCESSION NO--AP0113305
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0113305

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STRAIN RELAXATION PARAMETERS (V. M. MAKAROV, 1969) OF SYNTHETIC RECLAIMED RUBBER SKMS-30-ARKM-15 SHOWED THAT THE OPTIMUM TEMP. AND TIME OF RECLAIMING WITH SUPERHEATED STEAM (M. M. MAKAROV, ET AL., 1962) WERE 300DEGREES AND 180 SEC WHEN 15PERCENT PETROLEUM OIL (MAZUT) WAS ADDED TO THE RUBBER. THE PRESENCE OF MAZUT SLOWED THE CROSSLINKING OF THE RECLAIMED RUBBER WITHOUT AFFECTING THE DEVULCANIZATION RATES. THE RECLAIMED RUBBER OBTAINED BY THIS METHOD HAD BETTER HEAT STABILITY, WEAR RESISTANCE, AND FATIGUE RESISTANCE THAN OTHER RECLAIMED RUBBERS. FACILITY: YAROSLAV. TEKHNOL. INST., YAROSLAVL, USSR.

UNCLASSIFIED

1/2 035 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CERTAIN FEATURES OF THE MODULATION OF THE PHOTOELECTRON CURRENT IN
A PHOTOELECTRON MULTIPLIER WITH THE AID OF EXTERNAL ELECTRODES -U-
AUTHOR-(02)-SKIBARKO, A.P., EPSHTEYN, V.I.
COUNTRY OF INFO--USSR
SOURCE--RADIOELEKTRONIKA, VOL. 8, MAR. 1970, P. 350-360
DATE PUBLISHED--MAR70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., NAVIGATION, PHYSICS
TOPIC TAGS--PHOTOELECTRON, BEAM MODULATION, ELECTRON MULTIPLIER,
ELECTROMAGNETIC WAVE PROPAGATION, SIGNAL RECEPTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/0537 STEP NO--UR/0452/70/008/000/0350/0360
CIRC ACCESSION NO--AP0124232
UNCLASSIFIED

2/2 035

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124232

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THEORETICAL CALCULATION OF THE TEMPORAL DEPENDENCE OF THE OUTPUT CURRENT WAVEFORM OF A PHOTOELECTRON MULTIPLIER IN THE CASE WHERE AN ALTERNATING FIELD ACTS ON THE PHOTOELECTRON FLUX DIRECTLY AT THE PHOTOCATHODE. IT IS SHOWN THAT THE OUTPUT CURRENT DEPENDS ON THE POSITION ALTERNATING MODULATION VOLTAGE. THE OUTPUT WAVEFORMS CAN VARY OVER A WIDE RANGE EVEN FOR SMALL AMPLITUDES OF THE MODULATING SIGNAL. THE FOCUSING PROPERTIES OF ELECTRODES IN A PHOTOMULTIPLIER CAMERA TUBE ARE EVALUATED, AND RECOMMENDATIONS ARE GIVEN FOR IMPROVING THE THRESHOLD PROPERTIES DURING RECEPTION OF OPTICAL SIGNALS.

UNCLASSIFIED

USSR

UDC 681.326.3

KOTYUZHANSKIY, G. A., NISNEVICH, L. B., STETSYURA, G. G., and EPSHTEYN, V. L.,
Institute of Automation and Remote Control (Technical Cybernetics)

"A Data Transmission Device for Digital Computer Systems"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
No 3, Jan 71, Author's Certificate No 291199, Division G, filed 27 Nov 68,
published 6 Jan 71, p 119

Translation: This Author's Certificate introduces a data transmission device for digital computer systems. The device includes a transmitter which incorporates a module for storage and bit-serial transmission of priority code. One output of this module is connected to the controlling input of a switch and an input of the output signal generator, the other input of the signal generator being connected to the information source, while the output is connected to the communications channel. The data transmission device also includes a receiver which incorporates an input stage whose reception input is connected to the communications channel, while its actuating input is connected to the source of information. As a distinguishing feature of the patent, in order to organize exchange of information between sources through a common communications channel and to eliminate mutual interference, the

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USSR

KOTYUZHANSKIY, G. A., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 3, Jan 71, Author's Certificate No 291199, Division G, filed 27 Nov 68, published 6 Jan 71, p 119

receiver also contains a module for detection of a "pause" in the communications channel, and a module for detecting a "one" signal. The inputs of these modules are connected to the input stage of the receiver. The output of the "pause" detection module is connected to the actuating input of the module for storage and bit-serial transmission of priority code. The output of the "one" signal detection module is connected through a switch to the deactivating input of the module for storage and bit-serial transmission of priority code, and the output of this module is connected to the source of information.

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Acc. Nr:

AP0040885

Ref. Code:

UR 0103

PRIMARY SOURCE: Avtomatika i Telemekhanika, 1970, Nr / , pp 159-169

NUMERICAL MODEL FOR ESTIMATION OF PARAMETERS
OF AUTOMATIC DATA PROCESSING SYSTEMS

Kotyuzhanskiy, G. A.; Nisnevich, L. B.; Stetsyura, G. G.;
Tint, L. S.; Epshteyn, V. L.

There is presented a description of a specialized numerical model for the estimation of the electronic computer parameters (its memory volume, its productivity) and the choice of the discipline of data processing in designing one-machine automatic systems of data processing, functioning in real time.

REEL/FRAME
19750624

USSR

UDC 681.327.4'18

AKININ, Ye. Ya., EPSHTEYN, V. R., and BELIKOV, V. I.

"Tape Drive for Punched Data Carrier"

USSR Author's Certificate No 262423, filed 25 Nov 68, published 29 Sep 70
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6, Jun 71,
Abstract No 6 B369 P)

Translation: This invention belongs to the area of magnetic data recording on a tape magnetic carrier: namely, to tape drive mechanisms for a punched carrier. In the known tape drives for a punched carrier, the basic element of which is the toothed transport drum, the channel is reloaded when rewinding the tape, passing the tape by this drum. Otherwise, heavy tension of the tape can occur, and deformation or breaking of it will take place. In the proposed tape drive mechanism for accelerated rewinding of the carrier in the case of direct contact of it with the toothed drum on the input shaft, friction discs are installed between the small halfcoupling and the large halfcoupling, on the axial part of which there is a cylindrical spring in contact with an intermediate disc coupled by means of a separating shaft to the toothed transport drum. The large coupling is connected to the core of a solenoid via an L-type arm. There are 2 illustrations.

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1/2 009 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--ATYPICAL CASES OF ANTHRAX AMONG DOMESTIC ANIMALS -U-
AUTHOR--(02)-DOBIN, M.A., EPSTEIN, J.F.
COUNTRY OF INFO--USSR
SOURCE--MONATSHEFTE FUR VETERINARMIDIZIN, 1970, VOL 25, NR 3, PP 97-98
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, AGRICULTURE
TOPIC TAGS--ANTHRAX, ANIMAL HUSBANDRY, COMMERCIAL ANIMAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1987/0096

STEP NO--GE/0048/70/025/003/0097/0098

CIRC ACCESSION NO--AP0103776

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0103776

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ATYPICAL ANTHRAX WAS OBSERVED IN ONE COW, ONE CALF, ONE PIG, AND TWO DOGS. WHILE SUCH CASES ARE VERY RARE, KNOWLEDGE OF THE PATHOLOGICO ANATOMICAL CHANGES IMPLIED IS OF IMPORTANCE FOR DIFFERENTIAL DIAGNOSIS AND BECAUSE OF THE RISK TO HUMANS AND LIVESTOCK LIVING IN THE ENVIRONMENT OF AFFECTED ANIMALS.

UNCLASSIFIED

UDC 591.1

USSR

SHIROV, A. A., GALICHYI, V. A., and EPSHCHEN, Ye. L., Institute of Biomedical Problems, Ministry of Health USSR

"Changes in the Speed of the Process of Vestibular Compensation as a Function of the Position of the Head"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 5, 1970, pp 673-678

Abstract: The effects of head position on the rate of compensation after impairment of vestibular function were studied in rabbits by means of unilateral labyrinthectomy. The dynamics of the compensatory process was assessed from the resulting nystagmus. Nystagmus is one of the first symptoms to appear in unilaterally labyrinthectomized rabbits; it is clear-cut, lasts several days, and can be described quantitatively. Following destruction of a labyrinth, nystagmus directed toward the intact side appeared. The average number of nystagmic movements in experimental animals with the head forcibly maintained in a horizontal position was 54.4 ± 6.5 , as compared to 59.3 ± 3.6 in controls. After 24 hours, the movements decreased to 36.6 ± 4.5 and 17.5 ± 3.4 , respectively, i.e., they were 34.5 and 72% below the initial level. The compensatory process was thus significantly slower in the animals whose heads were kept on a horizontal plane, a fact which is

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SHIPOV, A. A., et al, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 5,
1970, pp 673-678

ascribed chiefly to the characteristic redistribution of proprioceptive impulses
from the neck muscles to the vestibular nuclei.

2/2

Aerosols

UDC 541.182.2/.3

USSR

YE
EPSHTEYN, E. M.

"On the Interaction of Aerosol Particles With an Acoustic Wave in the Presence of a High-Frequency Electric Field"

Moscow, Kolloidnyy Zhurnal, Vol 32, No 4, Jul-Aug 70, pp 628-629

Abstract: The article considers the effect of a uniform high-frequency electric field on the interaction of charged aerosol particles with an acoustic wave. The aerosol is assumed to be not too concentrated, so that the description of the interaction of particles with acoustic wave can disregard the coulomb interaction of the particles. If, in addition, the thermal motion of the particles is disregarded, their motion under the action of a monochromatic acoustic wave and a uniform a.c. field will be described by the equation

$$\frac{d^2x}{dt^2} + \frac{e}{m\omega_0} \frac{dx}{dt} = \frac{e}{m} E_0 \exp(\delta t) \sin \Omega t + Au \exp(iqx - i\omega t),$$

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USSR

EPSHTEYN, E. M., Kolloidnyy Zhurnal, Vol 32, No 4, Jul-Aug 70, pp 628-629

For solving this equation the interaction of particle with acoustic wave is regarded as a small disturbance. It is found that the effect of a high-frequency electric field where ω (acoustic wave frequency) $\ll \Omega$ (field frequency) reduces to renormalization of the coupling constant. The result is that such quantities as the flux of charged particles entrained by the acoustic wave, the sound absorption (scattering) coefficient of these particles etc. have an oscillatory dependence on the field amplitude and frequency. Measurement of the oscillation period can give information on the mobility and mass of aerosol particles.

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USSR

UDC 553.41(571.56+571.65)

VOLAROVICH, G. P., MIKHAYLOVA, M. S., and EPSHTEYN, YU. A., Central Scientific Research Institute of Prospecting for Nonferrous, Rare and Noble Metals

"Reconnaissance and Evaluation Criteria for Near-Surface Gold-Ore Deposits"

Moscow, Razvedka i Okhrana Nedr, No 8, Aug 73, pp 1-4

Abstract: The article deals with magmatic, mineralogical, structural, geochemical, and geomorphological criteria for the prospecting and evaluation of near-surface gold-ore deposits associated with young volcanic belts of the eastern regions. It is recommended that a complex of prospecting and evaluation methods are used, including determination of the geologic structure on the basis of the interpretation of large-scale aerial photos, for the study of near-surface gold deposits. 5 references.

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Microbiology

USSR

UDC: 676.851.48.097.25

VILSHANSKAYA, R. L., KAMZOLKINA, N. B. and ~~EPSTEIN-LITVAK, R. V.~~ ~~Moscow Institute of Epidemiological Microbiology~~, Moscow Institute of Epidemiological Microbiology

"Neurotoxin as One of the Factors Determining the Toxicity of Escherichia coli"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, Vol 48, No 1, Jan 71, pp 137-138

Translation: Two preparations were obtained from autolysates of freshly isolated cultures of E. coli: neurotoxin by precipitation with trichloroacetic acid at pH 3.5 (Buavin and Mesrobyanin, 1937) and endotoxin from the mother liquor remaining after centrifugation of the precipitated autolysates, subjected to dialysis and precipitation by alcohol (96° proof). Moreover, part of the series of neurotoxins obtained from hemolysis of E. coli cultures possessed also hemolytic capability; however, other series did not contain any determinable hemolysin. The preparations investigated in skin tests on rabbits possessed a marked sensitivity to neurotoxins. Similar preparations of neurotoxin and endotoxin were tested simultaneously on 2-L rabbits. The toxins were introduced intracutaneously in doses of 0.1 ml of serial double cultures. Reactions within 1 and 2 days after the test with an erythema diameter of not less

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USSR

VILSHANSKAYA, F. L., et al., Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, Vol 48, No 1, Jan 71, pp 137-138

than 5 mm at the site of introduction of the toxins were taken into account. The geometric mean dose harmful to the rabbit skin (SLD_{50}) was determined by the method of Larsen and coworkers (1960). The maximum daily dose was expressed in gammas of dry amounts of toxins. All of the seven neuro- and endotoxin series were tested.

It was established that the rabbit skin is more sensitive to the action of neurotoxins, on introduction of which the SLD_{50} values were considerably lower than on the introduction of endotoxins, and maximum reaction was observed during the first 24 hours, whereas following the introduction of endotoxin the above reaction occurred on the second day after the beginning of the test. The difference between the SLD_{50} values for the neurotoxins and endotoxins was statistically significant.

Since the live cultures of E. coli, from which neurotoxins and endotoxins are obtained, produced necrosis on the rabbit skin when introduced in an amount of 100 million microbial cells (minimum necrosis-producing dose), the question

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USSR

VILSHANSKAYA, F. L., et al., Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, Vol 48, No 1, Jan 71, pp 137-138

arose as to whether the necrotic effect of the live cultures was related to the toxins resulting from them. Knowing in each case the yield of one or the other toxin from the microbial cells (neurotoxin 6.8-19.7, endotoxin 0.4-17.1 per cent of dry weight), the probable content of each of them in 100 million microbial cells was calculated. For neurotoxins this value exceeded several times the corresponding SLD_{50} and the probable amount of toxin in 100 million microbial cells was either very small or did not exist.

The data obtained made it possible to consider doubtful the role of endotoxins in the emergence of the necrotic reaction following the introduction of live cultures. However, even neurotoxins in the amounts supposedly present in live cultures (1.7-49.3 γ in 100 million microbes) cannot by themselves cause necrosis on the rabbit skin (necrosis sets in with the introduction of 200-300 γ or neurotoxins). This prompted us to determine whether the necrosing effect of the live cultures was not a synergistic effect of neurotoxin and endotoxin. To test this hypothesis, 0.2 ml of a mixture consisting of equal volumes of

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USSR

VILSHANSKAYA, F. L., et al., Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, Vol 48, No 1, Jan 71, pp 137-138

diluted analogous neurotoxins and endotoxins was introduced subcutaneously to the rabbits. Nine Mixtures in all were tested. No exacerbation of the skin reaction was observed in any of the cases.

The results obtained did not exclude, however, the possible participation of part of the neurotoxins in the emergence of the dermonecrotic reaction. The fact that not all neurotoxins obtained from hemolysis of *E. coli* cultures possessed a hemolyzing capacity indicated the lability of hemolysin and its possible breakdown during extraction from microbial cells. Apparently, the toxicity of live *E. coli* is due more to the neurotoxins than to the endotoxins. This is indicated by the hemolyzing capability which we established for part of the neurotoxins, by the great sensitivity of the rabbit skin to them, and by the fact that the speed of the reaction to the neurotoxins does not differ from the speed of the reaction to live cultures.

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USSR

UDC 576.851.48.095.38:576.851.315

POKROVSKAYA, M. P., EPSHTEYN-LITVAK, R. V., VIL'SHANSKAYA, F. L., RAKHIMOVA, N.G. POSPELOVA, V. V., KUDRYAVTSEV, N. G., SIL'VESTOVA, T. N., KALININA, A. M., and SYADUK, V. F., Moscow Institute of Epidemiology and Moscow Municipal Sanitary Epidemiological Station

"In vitro Antagonistic Activity of E. coli (Strain M-17) and B. bifidum (Strain 1) Against El Tor Cholera Vibrios"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1972, pp 54-59

Abstract: The antagonistic activity of E. coli (strain M-17) and B. bifidum (strain 1) against 11 El Tor cholera vibrio strains (Inaba serotype 6 and Ogawa serotype 5) was studied in mixed cultures in vitro. During the first 6 hours of combined cultivation of E. coli and a cholera vibrio strain both microbial species grew, but the number of live vibrios began to decrease after 24 hours and after 48 hours almost all were dead. B bifidum had a similar inhibiting effect on vibrio growth. In the presence of both antagonistic strains, all the vibrios died within 48 hours without reproducing in the initial period of cultivation. It is suggested that the antagonistic activity of the two strains under study might be duplicated in an intestinal biocenosis and that a preparation made from these microorganisms (a combination of colibacterin and 1/2

USSR

POKROVSKAYA, M. P., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii,
No 10, 1972, pp 54-59

bifidumbacterin) should, in principle, be an effective means of treating
vibrio carriers and correcting the change in intestinal microflora observed in
cholera.

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- 30 -

Microbiology

USSR

UDC 576.315.48/.49.097.29

KAMZOLKINA, N. B., EPSHTEIN-LITVAK, R. V., and KOKORINA, T. A., Microbiology Department, Moscow Scientific Research Institute of Epidemiology and Microbiology

"Neurotoxins of Intestinal Bacteria"

Moscow, Byulleten Eksperimentalnoy Biologii i Meditsiny, Vol 71, No 2, Feb 71, pp 70-73

Abstract: The antigenic structure of neurotoxins obtained from dysentery bacteria was studied. Some biological properties of neurotoxins which distinguish them from the corresponding endotoxins were also studied. Intravenous injection of the neurotoxins and of serologically nontypable cultures of E. coli produced hypothermia symptoms in laboratory animals (guinea pigs and rabbits) and pareses and paralyzes of the extremities (mainly in rabbits). Injection of E. coli neurotoxins into the lumen of an isolated loop of the small intestine in a fasting rabbit produced dilatation of the segment with reduced serous-hemorrhagic effusion as well as numerous hemorrhages in the mucous membranes of the segment. The complex antigenic structure of the neurotoxins was demonstrated in a serological study. All neurotoxins of

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USSR

KAMZOLKINA, N. B., et al, Byulleten Eksperimentalnoy Biologii i Meditsiny,
Vol 71, No 2, Feb 71, pp 70-73

dysentery and typhoid bacteria contained specific components of the corresponding endotoxins in their structure, as was demonstrated in the agar precipitation reaction of corresponding anti sera with homologous Boivin endotoxins or endotoxins obtained from autolysate cultures. The neurotoxins also contained the antigens usually found with Shigella, Salmonella, and Escherichia. Vi- and H-antigens were found in the neurotoxins of typhoid strains. Several neurotoxins obtained from fresh hemolysing strains contained hemolysin, which was recognized by its action on human erythrocytes.

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USSR

UDC 621.396.66(155.8)

BEKHTEREV, A. I., PROCHENKO, V. V., TRYBIL, V. M., BRASCOV, R. A.

"A Device for Mechanically Tuning a Resonance Circuit" *CK 42 BRASCOV*

USSR Author's Certificate No 255377, Filed 15 Jul 68, published 24 Mar 70 (from
RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V420 P)

Translation: The proposed device for mechanically tuning a resonance circuit contains a kinematic chain for adjusting the tuning element, a kinematic chain for fine tuning of this element, and a mechanism for switching the kinematic chains which is controlled by a mismatch pickup. As a distinguishing feature of the patent, the construction of the device is simplified and its operational reliability is improved by using a free travel mechanism as the mechanism for switching the kinematic chains. This mechanism is equipped with a sprocket which is connected to the shaft of the tuning element. Spring-supported rollers are wedged between the sprocket and the ring of the worm wheel for the kinematic chain used for fine tuning. The switching mechanism is also equipped with a fork fitted with lugs to unwedge the rollers.

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USSR

UDC 624.04:534.1

PIKULEV, N. A., Kazan', ERDELEVSKIY, A. N., Sverdlovsk

"On the Problem of Designing a Group of Vibration Dampers Considering Detuning"

Podol'sk, Stroitel'naya mekhanika i raschet sooruzheniy, No. 5, 1971, pp 4-9

Abstract: A technique is proposed for calculating the total dynamic rigidity of a group of identical linear vibration absorbers considering their detuning. The vibration dampers are considered as a group of parallel couplings connected to the structure, the partial natural frequencies of which have random deviations from the frequency of the forced oscillations. It is assumed that these deviations lie with a given degree of probability within the tolerance limits due to inaccuracy in fabrication or construction of the vibration dampers and also by instability in the frequency of the dynamic disturbance. Formulas are derived for determining the total dynamic rigidity of the group of vibration dampers where the partial natural frequencies have a random deviation from a given value corresponding to the ideal tuning of the system. Analysis shows that when the number of vibration dampers in the group is small and the probability of identical detuning is great in several or in all vibration dampers, the formula given for calculating the total dynamic rigidity of the system

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USSR

PIKULEV, N. A., ERDELEVSKIY, A. N., Stroitel'naya mekhanika i raschet sooruzheniy, No. 5, 1971, pp 4-9

with vibration dampers is selected depending on the result of the expansion of a certain inequality. When the purpose of installing a small group of vibration dampers is to obtain a coefficient of vibration damping with a modulus considerably greater than unity the correct coefficient for calculating the total dynamic rigidity of the group is taken from a given table without calculating the properties of the system as a whole. It is shown that a large group of randomly detuned vibration dampers is similar to a group of ideally constructed vibration dampers with an increase in damping. One can therefore raise the accuracy of the tuning at a stable frequency of the forced oscillations. If the frequency of the forced oscillations changes over a wide range, an increase in the accuracy of the tuning of the vibration dampers can lead to a considerable drop in their total design dynamic rigidity.

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1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--INITIATED DECARBOXYLATION OF MERCURIC VALERATE, CAPROATE, AND
CAPRATE. SYNTHESIS OF N BUTYL, N AMYL, AND N NONYLMERCURY COMPOUNDS -U-
AUTHOR-(04)-OLDEKOP, YU.A., MAYER, N.A., ERDMAN, A.A., DZHOMIDAVA, YU.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 637-41
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--DECARBOXYLATION, ORGANOMERCURY COMPOUND, UV LIGHT, ORGANIC
PEROXIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/1472 STEP NO--UR/0079/70/040/003/0637/0641
CIRC ACCESSION NO--AP0135142
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0135142

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HG(II) VALERATE (I) CAPROATE (II), AND CAPRATE (III), ARE DECARBOXYLATED BY UV LIGHT OR ACYL PEROXIDES TO FORM SALTS OF ALKYL MERCURY IN GOOD YIELDS. (I), M. 96DEGREES (II), M. 104DEGREES, (III), M. 112-13DEGREES. HEATING 10G I WITH 10 G VALEROYL PEROXIDE AND 200 G BUCO SUB2 H AT 97-80DEGREES UNTIL GAS EVOLUTION CEASED (1 HR) GAVE MAINLY CO SUB2, TRACES OF BUTENES, AND SOME C SUB4 H SUB10 IN THE EFFLUENT GASES; THE RESIDUE GAVE 75.1PERCENT BUHG SALTS, 12.3PERCENT HG PRIME POSITIVE, 12.6PERCENT HG PRIME2 POSITIVE. TO HG 5 AND BUCO SUB2 H 100 WAS ADDED HNO SUB3 0.8 AND, OVER 15 MIN 30PERCENT H SUB2 O SUB2 12 MILLIMOLLES, THE MIXT. STIRRED 0.5 HR AT ROOM TEMP. AND 0.5 HR AT 85DEGREES, TO FORM A CLEAR SOLN. FREE OF HG OR HG(I) SALTS, AND CONCD. TO GIVE 99.5PERCENT I. SUCH A SOLN. AFTER REMOVAL OF MOST OF THE SOLVENT WAS TREATED WITH 1.5 MILLIMOLLES DRY NA VALERATE AND 42 MILLIMOLLES VALERIC ANHYDRIDE, COOLED TO MINUS 5DEGREES AND TREATED WITH 12 MILLIMOLLES 60PERCENT H SUB2 O SUB2, KEPT 40 MIN, RAPIDLY HEATED TO 98DEGREES, KEPT 1 HR DURING GAS EVOLUTION, FILTERED TO REMOVE 0.05 G HG, AND CONCD. TO YIELD, AFTER ADDN. OF KCL, 92.8PERCENT BUHGCL; ACIDIFICATION OF THE FILTRATE GAVE ON TREATMENT WITH H SUB2 S 0.02 G HGS. SIMILAR REACTIONS WITH SOLN. OF II, USING CAPROIC ACID DERIVS., GAVE 94.4PERCENT N C SUB5 H SUB11 HGCL. SIMILARLY WAS PREPD. A SOLN. OF BUTYLMERCURY VALERATE, WHICH WAS CONCD., TAKEN UP IN ACOH AND H SUB2 O, AND TREATED WITH 25PERCENT NH SUB4 OH AND H SUB2 S TO YIELD 75PERCENT BU SUB2 HG; SIMILARLY WAS PREPD. 69PERCENT (N C SUB5 H SUB11)SUB2 HG.

FACILITY: INST. FIZ. ORG. KHIM., MINSK, USSR.

UNCLASSIFIED

1/2 . 015 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--DECARBOXYLATION OF MERCURIC BUTYRATE AND THE INFLUENCE OF
PEROXIDES. SYNTHESIS OF PROPYLMERCURY COMPOUNDS -U-
AUTHOR-(04)-OLDEKOP, YU.A., MAYER, N.A., ERDMAN, A.A., DZHOMIDAYA, YU.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2) 300-5

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DECARBOXYLATION, ORGANOMERCURY COMPOUND, PEROXIDE, CHEMICAL
SYNTHESIS, CHAIN REACTION, ACETATE, PROPIONATE, BENZOYL PEROXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/1409

STEP NO--UR/0079/70/040/002/0300/0305

CIRC ACCESSION NO--AP0101499

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0101499

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTING PRODUCTS FORM REACTION OF MERCURIC BUTYRATE (I) WITH 8Z SUB2 O SUB2 AND (PRCO SUB2) SUB2 IN C SUB6 H SUB6, PRCO SUB2 H AND MECN WERE TABULATED UNDER A VARIETY OF CONDITIONS AND REACTANT RATIOS. THE MAJOR PRODUCTS WERE THE APPROPRIATE PROPYLMERCURY SALTS (II), FOLLOWED IN ORDER BY PHENYLMERCURY SALTS, MERCURIC SALTS, CO SUB2, AND SMALL AMTS. CO, C SUB3 H SUB6, C SUB3 H SUB8, AND LITTLE IF AN HG. IN ALL CASES I IS DECARBOXYLATED TO FORM UP TO 92PERCENT II; IN PRCO SUB2 H AND C SUB6 H SUB6 THE REACTION HAS A CHAIN MECHANISM. FOR SYNTHESIS OF I THE SCHEME DEVELOPED WAS SIMILAR TO THAT USED EARLIER FOR THE ACETATE AND THE PROPIONATE (O. ET AL., 1969). SIMILAR REACTION OF 40 HG, 400 PRCO SUB2 H, 3 HNO SUB3 AND 60 MILLIMOLES H SUB2 O SUB2 IN THE 1ST STEP, FOLLOWED BY 500 (PRCO SUB2) SUB2, 80 H SUB2 O SUB2 AND 6 MILLIMOLES PRCO SUB2 NA IN THE 2ND STEP, EVAPN. OF THE SOLVENT, ADDN. OF 30 ML ACOH AND 500 ML H SUB2 O, NEUTRALIZATION WITH NH SUB4 OH, AND SATN. WITH H SUB2 S GAVE 86PERCENT PRHGS, WHICH HEATED AT 130 TO 80DEGREES GAVE 69.8PERCENT PR SUB2 HG, 8 SUB13 78 TO 80DEGREES.

UNCLASSIFIED

USSR

UDC 547.562+532.74+543.422

PETROV, S. M., PILYUGIN, V. S., EREDZHEPORIA, Z. A., and FATKULLIN, F. A.,
Bashkir State University imeni 40-Letiya Oktyabrya.

"Study of the Reaction of Halogenated Phenols With Tributylphosphate and
Trioctylphosphenoxide"

Leningrad, Zhurnal Obshchey Khimii, Vol 429(104), Vyp 4, 1972, pp 762-765

Abstract: The size of the equilibrium constant and the size of the bathochrome shift were studied for the reaction of various mono-substituted chloro-, bromo-, and iodophenols and the di-, tri-, tetra-, and pentachlorophenols with tributyl phosphate (TBP) and trioctylphosphenoxide (TOPP). The value of the equilibrium constant for the reaction of phenols with TOPP was larger than with TBP; however, the equilibrium constants for both of the above classes of reactions were significantly larger than previously reported values for the reaction of such phenols with ketones, amides, and sulfoxides. The value of the equilibrium constant for the title reaction due to hydrogen bonding is related to three factors: 1) the presence of intramolecular hydrogen bonding in the studied phenols; 2) the acidity of the phenol; and 3) the basicity of the acceptor (in this case the TBP and TOPP).

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UDC 616.12-007-053.1-089.5-06

SENGIYEVSKIY, V. S., TASHPULATOV, A. T., CHERNOV, V. K., NUGMANOV, YE. K., YAVORSKAYA, G. V., ERENBURG, T. A., LIZUNKOVA, L. P., and TSYBANEVA, N. G., Department of Cardiovascular Surgery, Kazakh Institute of Clinical and Experimental Surgery, Ministry of Public Health, Kazakh SSR, Alma-Ata

"Operative Complications During Correction of Congenital Heart Defects Under Conditions of Moderate Hypothermia"

Moscow , Grudnaya Khirurgiya, No 2, 1970, pp 57-62

Abstract: A total of 230 operations were performed using hypothermia at the institute from 1965 to 1969, operations were conducted to correct septal defects, pulmonary and aortic stenosis, tetralogy of Fallot, combined and rare defects. Among the life-threatening complications encountered in the operations were asystole, ventricular fibrillation, aeroembolism of the coronary vessels, loss of blood, atrioventricular and bundle-branch heart block. The causes of the complications are analyzed and suggestions made to prevent them and to control those that occur. With the present level of knowledge, mortality during operations performed under moderate hypothermia should not exceed 1%.

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CSG: 1840 (92 pages)

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1/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--INITIATION OF THE DECARBOXYLATION OF MERCURIC ENANTHATE, CAPRYLATE,
AND PELARGONATE. SYNTHESIS OF C SUB6 THROUGH C SUB8 N, ALKYL MERCURY
AUTHOR-(04)-OLDEKOP, YU.A., MAYER, N.A., ERDMAN, A.A., STANOVAYA, S.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2) 305-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--DECARBOXYLATION, ORGANOMERCURY COMPOUND, ORGANIC PEROXIDE, UV
LIGHT, CHAIN REACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1407

STEP NO--UR/0079/70/040/002/0305/0308

CIRC ACCESSION NO--AP0101497

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0101497

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING (RC O SUB2) SUB2 HG (ENANTHATE, CAPRYALTE OR PELARGONATE) WITH ENANTHOYL PEROXIDE, BZ SUB2 O SUB2, CAPRYLOYL PEROXIDE OR PELARGONYL PEROXIDE 1-10 HR AT 80DEGREES OR EXPOSURE OF THESE SYSTEMS TO UV LIGHT RESULTED IN DECARBOXYLATION OF THE SALTS TO FORM THE CORRESPONDING ALKYL MERCURY SALTS. IN THIS MANNER 40 TO 93PERCENT YIELDS OF ALKYL MERCURY SALTS WERE OBTAINED (HEXYL, HEPTYL AND OCTYL) ALONG WITH LESSER YIELDS OF SALTS OF PHENYL MERCURY, SMALLER AMTS. MERCUROUS SALTS AND MERCURIC SALTS, MINOR AMTS. HG AND APPROPRIATE AMTS. CO SUB2. THE DECARBOXYLATION APPEARS TO BE A CHAIN REACTION. REFLUXING THE HG DIACYLATE IN C SUB6 H SUB6 6 HR GAVE 38 TO 56PERCENT PHENYL MERCURY SALT, FREE OF ALKYL MERCURY SALTS. CONVERTED TO THE HALIDES THESE WERE ISOLATED AS: PHHGCL, M. 250DEGREES, PHHG8R, M. 272 TO 50RGREES. SIMILARLY WERE ISOLATED C SUB6 H SUB13 HGCL, M. 124DEGREES; BROMIDE, M. 121DEGREES; C SUB7 H SUB15 HG8R, M. 114DEGREES, AND C SUB8 H SUB17 HGCL, M. 115DEGREES.

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AP9053076

UR 0289

PRIMARY SOURCE: Izvestiya Sibirskogo Otdeleniya, AN SSSR,
Seriya Khimicheskikh Nauk, Nr 12(162), Nr 5,
pp 62-65

*Spotted book ways:
YERENBURG or
SELENIDES*

A. A. Opalovsky, V. E. Fyodorov,
B. G. Erenburg, E. U. Lobkov, L. N. Senchenko

NEW X-RAY DATA
ON TUNGSTEN AND RHENIUM SELENIDES

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Complete tables of interplanar distances for WSe₂ and ReSe₂ have been determined;
the WSe₂ lattice constants have been corrected.
ReSe₂ prepared from elements is a new structure modification.

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1/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--SYNTHESIS AND X RAY DIFFRACTION STUDY OF TUNGSTEN AND RHENIUM
TELLURIDES -U-
AUTHOR--(05)-OPALOVSKIY, A.A., FEDOROV, V.YE., LOBKOV, E.U., ERENBURG,
V.G., SENCHENKO, L.N.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 561-3
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--X RAY DIFFRACTION, TUNGSTEN COMPOUND, TELLURIDE, RHENIUM
COMPOUND, CHALCOGENIDE GLASS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/0898 STEP NO--UR/0363/70/006/003/0561/0563
CIRC ACCESSION NO--AP0118067

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0118067

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. W-TE AND RE-TE MIXTS. AT A METAL CHALCOGEN RATIO OF 1:2 WERE HEATED IN EVACUATED AND SEALED QUARTZ AMPULES AT A RATE OF 8-10 DEGREES PER MIN. AND CALCINED AL SUB2 O SUB3 SERVED AS THE DTA REF. THE HEATING CURVES ARE CHARACTERIZED BY 2 HEATING EFFECTS, OF WHICH THE ENDOTHERMAL EFFECT IS CAUSED BY THE MELTING OF TE AND THE EXOTHERMAL EFFECT CORRESPONDS TO OXIDN. OF THE METAL WITH TE. THIS MEANS THAT THE REACTION BETWEEN W AND RE PROCEEDS ONLY WITH FUSED CHALCOGEN. THE RATE OF THE HETEROGENEOUS REACTIONS IS STRONGLY DEPENDENT ON THE INTERACTION SURFACE, WHICH VARIES SIGNIFICANTLY IF GAS IS USED IN THE REACTION. WTE SUB2 WAS SYNTHESIZED AT 750 DEGREES FOR 25-30 HR, AND RETE SUB2 AT 800 DEGREES FOR 60-5 HR. THE SAMPLES WERE STUDIED BY X RAY PHASE AND IR ANALYSES. THE UNIT CELL PARAMETERS WERE CALCD. BY USING COMPUTERS. THE AGREEMENT BETWEEN THE MEASURED AND THE CALCD. D SUBHKL VALUES WAS NOT VERY GOOD, ESP. IN THE LARGE ANGLES REGION. FACILITY: INST. NEORG. KHIM., NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

UDC 678.7:539.2

PODDUBNYY, I. Ya., ERENBURG, Ye. G., and GRECHANOVSKIY, V. A., All Union Scientific Research Institute of Synthetic Rubber imeni S. V. Lebedev

"Research on the Molecular Structure of Synthetic Rubbers"

Moscow, Kauchuk i Rezina, No 2, 1971, pp 6-9

Abstract: The article is a survey of the principal work done at the Physico-chemical Laboratory of the All Union Scientific Research Institute of Synthetic Rubber in the field of the molecular structure of various types of synthetic rubbers. The comprehensive study of hydrodynamic properties of solutions established the relationship between the intrinsic viscosity and sedimentation constant of butadiene-styrene, cis-1,4-butadiene, cis-1,4-isoprene, butadiene-nitrile rubbers of various brands, butyl rubber and copolymers of the SKEP type and their molecular weight. Molecular-weight distribution and kinetic data were used to study the anionic polymerization of butadiene and isoprene under the influence of butyllithium, as well as the coordination-ionic polymerization of these same monomers under the influence of complex catalysts. Methods were developed for a quantitative characterization of polymer branching, based on measurements of the intrinsic

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